

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

TRANSLATION
PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

P041046P0

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2005/023495

International filing date (day/month/year)

21.12.2005

Priority date (day/month/year)

28.12.2004

International Patent Classification (IPC) or both national classification and IPC

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input checked="" type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

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Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:



the international application in the language in which it was filed



the translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rule 12.3(a) and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material



a sequence listing



table(s) related to the sequence listing

b. format of material



on paper



in electronic form

c. time of filing/furnishing



contained in the international application as filed



filed together with the international application in electronic form



furnished subsequently to this Authority for the purposes of search

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. IV

Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees the applicant has, within the applicable time limit:
- ☐ paid additional fees
- ☐ paid additional fees under protest and, where applicable, the protest fee
- ☐ paid additional fees under protest but the applicable protest fee was not paid
- ☒ not paid additional fees
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with
- ☒ not complied with for the following reasons:

The "special technical feature" common to the subject matters of claims 1 and 2, the subject matters of claims 3 and 4, the subject matter of claim 5, the subject matter of claim 6, the subject matter of claim 7, the subject matters of claims 8-10, the subject matters of claims 11-13, the subject matters of claims 19, 20, 22 and 23, and the subject matter of claim 21 is the structure of "a nanowire comprising a plurality of contact regions and at least one channel region connected with the plurality of contact regions, wherein the channel region is formed of a first semiconductor material, the surface of the channel region is covered with an insulation layer selectively formed on the channel region, each of the plurality of contact regions is formed of a second semiconductor material different from the first semiconductor material of the channel region, and at least the surface of the channel region has a conductive portion."

As a result of search, however, this structure is disclosed in [JP, 2004-507104, A (President and Fellows of Harvard College), 4 March, 2004 (04.03.04), paragraphs [0081]-[0130], [0184]-[0192]], so the above subject matters do not appear to be novel.

As a result, since the matter common to the above subject matters is no more than prior art, this common matter is not considered to be a special technical feature in the sense of the second sentence of PCT Rule 13.2.

The "special technical feature" common to the subject matters of claims 14 and 15, the subject matter of claim 16, and the subject matters of claims 17 and 18 is "a nanowire production method comprising a process of preparing a nanowire material including a part formed of a first semiconductor material and a part formed of a second semiconductor material different from the first semiconductor material and a process of selectively forming an insulation layer on the surface of the part formed of the first semiconductor material and making at least the surface of the part formed of the second semiconductor material function as a conductive portion."

As a result of search, however, this structure is disclosed in [JP, 2004-507104, a (President and Fellows of Harvard College), 4 March, 2004 (04.03.04), paragraphs [0081]-[0130], [0184]-[0192]], so the above subject matters do not appear to be novel.

As a result, since the matter common to the above subject matters is no more than prior art, this common matter is not considered to be a special technical feature in the sense of the second sentence of PCT Rule 13.2.

4. Consequently, this opinion has been established in respect of the following parts of the international application:
- ☐ all parts
- ☒ the parts relating to claims Nos. 1-2, 14-15, 24-25

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	15, 24-25	YES
	Claims	1-2, 14	NO
Inventive step (IS)	Claims		YES
	Claims	1-2, 14-15, 24-25	NO
Industrial applicability (IA)	Claims	1-2, 14-15, 24-25	YES
	Claims		NO
2. Citations and explanations:			
<p>Document 1: JP, 2004-507104, A (President and Fellows of Harvard College), 4 March, 2004 (04.03.04), paragraphs [0081]-[0130], [0184]-[0192], & US, 2002/0130311, A1</p> <p>Document 2: JP, 2005-510711, A (Sony International), 21 April, 2005 (21.04.05), paragraph [0062], & WO, 2003/046536, A1</p> <p>Document 3: WO, 2004/032191, A2 (Nanosys, Inc.), 15 April, 2004 (15.04.04), page 33, lines 8-16, & JP, 2006-501690, A</p>			
<p>Claims 1, 2 and 14</p> <p>The subject matters of claims 1, 2 and 14 do not appear to be novel or to involve an inventive step in view of document 1 cited in the ISR.</p> <p>Document 1 describes a method of producing a SiGe alloy nanowire which is rich with Si in its center portion and with Ge in its edge portion, and also describes that the nanowire is used for FET.</p>			
<p>Claim 15</p> <p>The subject matter of claim 15 does not appear to involve an inventive step in view of documents 1 and 3 cited in the ISR.</p> <p>Document 3 describes that the contact region of a nanowire is covered by a metal thin film, and the surface of the contact region covered by the metal thin film is considered to have reacted with a metallic element. Since the inventions described in documents 1 and 3 pertain to the technical field of nanowires, a person skilled in the art could have easily conceived of combining the inventions described in both documents to constitute the present invention.</p>			
<p>Claims 24 and 25</p> <p>The subject matters of claims 24 and 25 do not appear to involve an inventive step in view of documents 1 and 2 cited in the ISR.</p> <p>Document 2 describes a technique of using a coating method for the accumulation of a nanowire. Since the inventions described in documents 1 and 2 pertain to the technical field of nanowires, a person skilled in the art could have easily conceived of combining the inventions described in both documents to constitute the present invention.</p>			

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: IV. 3.

Therefore, it is clear that the subject matters of claims 1 and 2, the subject matters of claims 14, 15, 24 and 25, the subject matters of claims 3 and 4, the subject matter of claim 5, the subject matter of claim 6, the subject matter of claim 7, the subject matters of claims 8-10, the subject matters of claims 11-13, the subject matter of claim 16, the subject matters of claims 17 and 18, the subject matters of claims 19, 20, 22 and 23, and the subject matter of claim 21 do not satisfy the requirement of unity of invention.